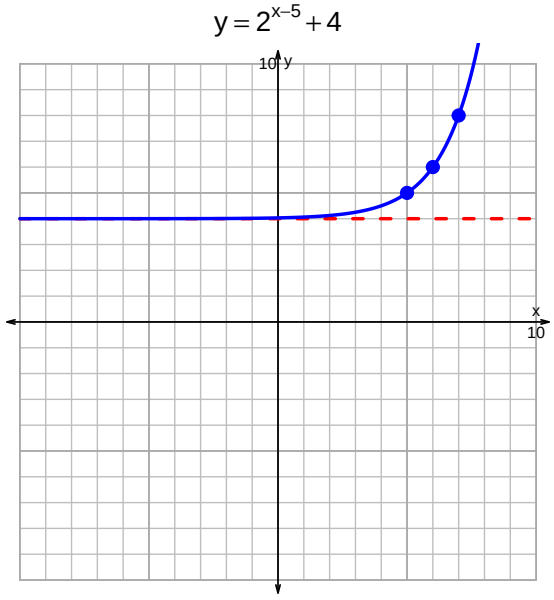
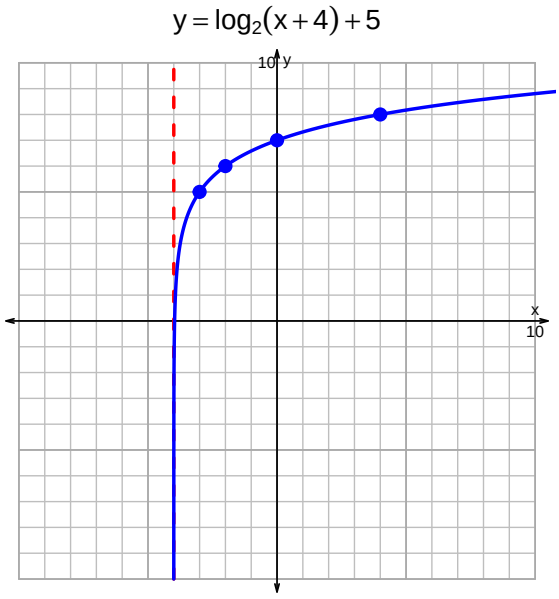
Name: Date:

S18QUIZ: EXP LOG (SLTN v279)

1. Graph $y = 2^{x-5} + 4$ and $y = \log_2(x+4) + 5$ on the grids below. Also, draw any asymptotes with dotted lines.





2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-13 = \left(\frac{-3}{5}\right) \cdot 2^{7t/4}$$

Divide both sides by $\frac{-3}{5}$.

$$\frac{13 \cdot 5}{3} = 2^{7t/4}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{13 \cdot 5}{3}\right) = \frac{7t}{4}$$

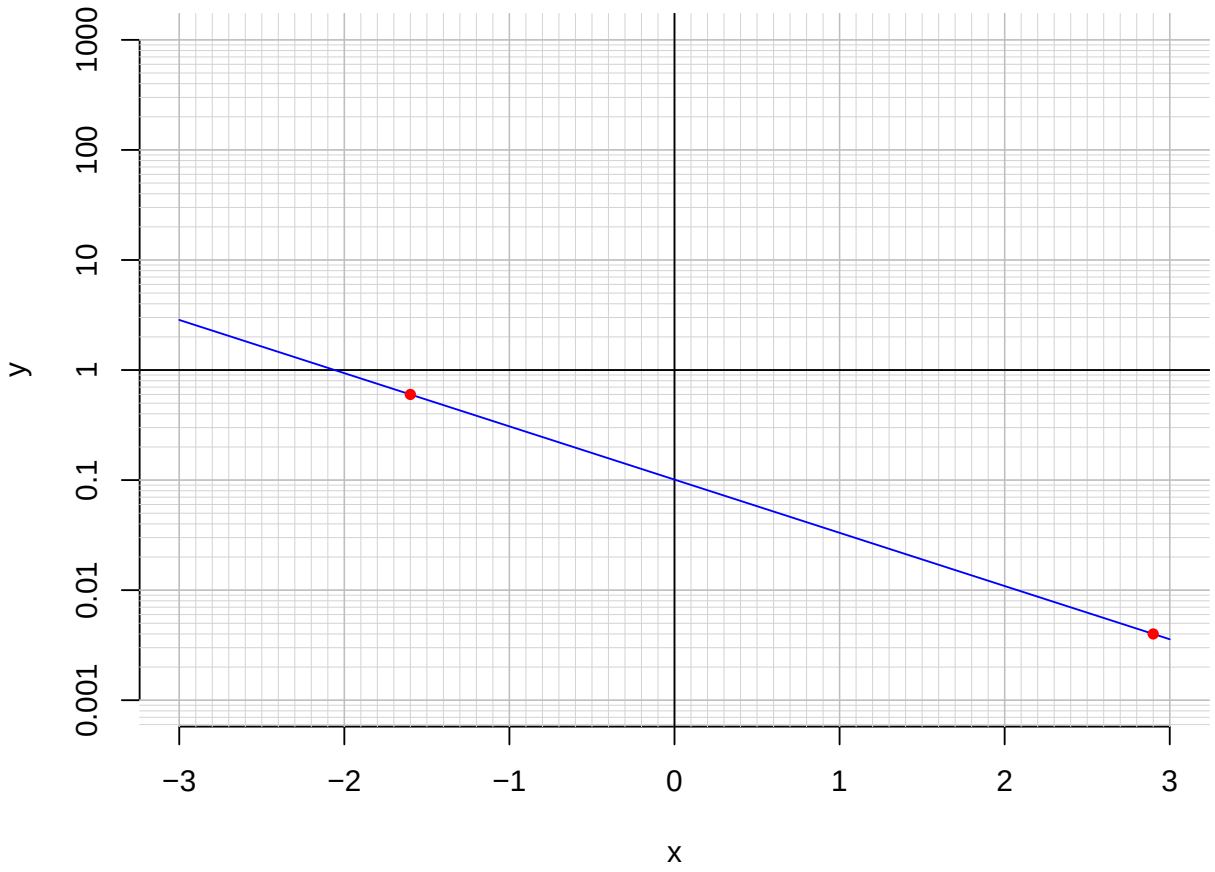
Divide both sides by $\frac{7}{4}$.

$$\frac{4}{7} \cdot \log_2\left(\frac{13 \cdot 5}{3}\right) = t$$

Switch sides.

$$t = \frac{4}{7} \cdot \log_2\left(\frac{13 \cdot 5}{3}\right)$$

3. An exponential function $f(x) = 0.101 \cdot e^{-1.11x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(2.9)$.

$$f(2.9) = 0.004$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{1.11} \cdot \ln\left(\frac{x}{0.101}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.6)$.

$$f^{-1}(0.6) = -1.6$$